

Borehole

40-07-06**Log Event A****Borehole Information**

Farm : <u>S</u>	Tank : <u>S-107</u>	Site Number : <u>299-W23-161</u>
N-Coord : <u>35,972</u>	W-Coord : <u>75,663</u>	TOC Elevation : <u>665.46</u>
Water Level, ft :	Date Drilled : <u>10/31/1971</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness, in. : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>100</u>	

Borehole Notes:

This borehole was drilled in October 1971 to a depth of 100 ft using 6-in. casing. The drilling report does not indicate if the borehole casing was perforated or grouted. The casing thickness is presumed to be 0.280 in., on the basis of published thickness for schedule-40, 6-in. steel tubing. The top of the casing, which is the zero reference for the SGLS, is approximately 0.2 ft above the tank farm grade.

According to the driller's log, three attempts were made to install this borehole. The first attempt encountered a hard object at 14 ft; the drill rig was then moved 2 ft south. The second attempt encountered a hard object at 4 ft; the drill rig was then moved 2 ft east to the borehole's present location.

Equipment Information

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>05/1996</u>	Calibration Reference : <u>GJPO-HAN-5</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>06/11/1996</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>98.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>77.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>06/11/1996</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>78.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>59.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>3</u>	Log Run Date : <u>06/12/1996</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>34.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Borehole

40-07-06**Log Event A**

Log Run Number :	<u>4</u>	Log Run Date :	<u>06/12/1996</u>	Logging Engineer:	<u>Alan Pearson</u>
Start Depth, ft.:	<u>60.0</u>	Counting Time, sec.:	<u>100</u>	L/R : <u>L</u>	Shield : <u>N</u>
Finish Depth, ft. :	<u>33.0</u>	MSA Interval, ft. :	<u>0.5</u>	Log Speed, ft/min.:	<u>n/a</u>

Analysis Information

Analyst : S.D. BarryData Processing Reference : P-GJPO-1787Analysis Date : 03/14/1997**Analysis Notes :**

This borehole was logged in four log runs. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The energy calibration and peak-shape calibration from these spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation.

Casing correction factors for a 0.280-in.-thick steel casing were applied during analysis.

The man-made radionuclide Cs-137 was detected in this borehole. Measurable Cs-137 contamination was detected at the ground surface, 1.5 ft, between 3 and 4 ft, and at the bottom of the logged interval (98.5 ft).

Significant decreases in the U-238 concentration values were detected at depths of 34 and 60 ft. The K-40 concentration values increase slightly at about 45 ft. A region of variable K-40 concentration values was detected between 45 and 53 ft. The K-40 concentration values increase significantly at 53 ft and generally remain elevated to the bottom of the logged interval.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Reports for tanks S-107 and S-110.

Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.